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EXAMINER	
ROBERTS, JESSICA M	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,865	HAMZA ET AL.	
	Examiner	Art Unit	
	Jessica Roberts	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/19/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgment of Amendments

The amendment filed on 07/19/2007 overcomes the following rejection(s)/objection(s):

Amendment to the specification has overcome the objection for minor informalities.

The new reference characters outline in figure 6 has overcome the objections in the previous non-final office action.

The rejection of claim 23 under 35 U.S.C 112, second paragraph has been withdrawn in view of Applicants amendment.

Applicant's arguments with respect to claims 1-27 have been considered but are in moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Pavlidis et al.: Urban Surveillance Systems, 2001 and in view of Monroe et al., US-2003/0025599.

Regarding claim 1, Pavilds discloses a method of detecting motion in an area the method comprising: receiving frames of the area (Pavlidis, DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixels as noise, *C. Multiple Hypotheses Predictive Tracking* pg. 1448 and Section V).

Pavlidis is silent in regards to using a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected. However, Monroe discloses a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected (only changes in the data need be transmitted; see page 4, paragraph [0032], [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding claim 2, the combination of Monroe and Pavlidis as a whole further teach discloses the high-speed detection algorithm operates in a compressed image domain (Monroe, [compressed digital images; page 4, paragraph [0028]).

Regarding claim 3, the combination of Monroe and Pavlidis as a whole further teach high speed detection algorithm operates in an uncompressed (Monroe, optionally compressed; page 16, paragraph [0212]) image domain.

Regarding claim 4, the combination of Monroe and Pavlidis as a whole further teach the high performance detection algorithm operates in an image pixel domain (Pavlidis, motion segmentation through a multi-normal representation at the pixel level, pg 1482, first column).

Regarding claim 5, the combination of Monroe and Pavlidis as a whole further teach the high speed motion detection algorithm represents portions of images in grey scale pixels (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding claim 6, the combination of Monroe and Pavlidis as a whole further teach the image are represented in grey scale when such portions are not high in color content (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding claim 7, the combination of Monroe and Pavlidis as a whole further teach the selected portions of the images are low in color content (Pavlidis discloses the use of a dual channel camera system that uses a medium resolution color camera during the day, and a high resolution grey scale camera during the night, V. *Optical and System Design,* page 1482. Monroe discloses the ability to select areas of a selected scene for monitoring activity level paragraph [0044]).

Regarding claim 8, the combination of Pavlidis and Monroe as a whole further teach the portions are based on an initial set up (Pavlidis. VI. Object Segmentation and

Tracking, *Initialization*, pg. 1484, Monroe discloses defaulting and programmable modes; page 4, paragraph [0028]).

Regarding claim 9, the combination of Pavlidis and Monroe as a whole further teach wherein the selected portions are determined based on a real time assessment of dynamic change in the area (Monroe, [0045]).

Regarding claim 10, the combination of Monroe and Pavlidis as a whole further teaches the threshold is predetermined (defined threshold would be indicative of motion; page 8 paragraph [0115]).

Regarding claim 11, the combination of Monroe and Pavlidis as a whole further teach the area is a predetermined (remote; page 8 paragraph [0108]) area.

Regarding claim 12, the combination of Monroe and Pavlidis as a whole further teach the frames comprise pixels, and where such pixels are group in blocks of pixel, each block being represented as an average or median in the color domain (Pavlidis, pg 1485, first column).

Regarding claim 13, the combination of Monroe and Pavlidis as a whole further teach the blocks of pixels are of different sizes (decimation various numbers of pixels will effectively change the sizes of pixel blocks; page 9 paragraph [0118]).

Regarding claim 14, the combination of Monroe and Pavlidis as a whole further teach the area requiring higher resolution to detect motion are represented by blocks of smaller number of pixels (page 9, paragraph [0116] and fig. 2:21-24) Monroe discloses using the histogram to determine the degree of change, where pixels are grouped according the value of change.

Regarding claim 15, the combination of Monroe and Pavlidis as a whole further teach the number of pixels in the blocks is varied based on depth of field (the degree of motion; page 9, paragraph [0121] and see fig. 3: 34).

Regarding claim 16, Pavlidis teach a method of detecting motion in an area (DETER, a prototype urban surveillance system, *Introduction*, pg 1478), the method comprising: receiving frames of the area (DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected; using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixel as noise VI. *C. Multiple Hypothesis Predictive Tracking,* pg. 1488), wherein the frames comprise pixel (motion segmentation though a multi-normal representation at the pixel level, pg 1482), and where such pixels are grouped in blocks of pixels, each block being represented as a single average pixel (Jefferys divergence measures pg 1485-1487); and initializing a model of the area comprising multiple weighted distributions for each block of pixels (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485-1487). Pavlidis is silent in regards to using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected.

However, Monroe discloses using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected (see page 4, paragraph [0032], [0033]). Therefore it would have been obvious to one of ordinary skill in the art

at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding claim 17, the combination of Pavlidis and Monroe, as a whole further teaches the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied (Monroe, continuous variable; page 9, paragraph [0121]).

Regarding claim 18, the combination of Pavlidis and Monroe further teaches the number of weighted distributions varies (Monroe, continuous variable; page 9, paragraph [0121]) between 1 and 5 (Pavlidis, see VI. Object Segmentation and Tracking, page 1485).

Regarding claim 19, the combination of Pavlidis and Monroe, as a whole further teach the number of weighted distributions is varied based on dynamics of motions or expectations (Pavlidis, VI. Object Segmentation and Tracking, *Model Update When a Match is Found,* pg. 1486-1487).

Regarding claim 20, the combination of Pavlidis and Monroe, as a whole further teach the model is based on N successive frames and the weight is based on a count (Pavlidis, VI. Object segmentation and Tracking, *A. Initialization page* 1484-1485)

Regarding claim 21, see analysis and rejection of claim 16. Furthermore, a predefined number of weighted distributions is selected for each block of pixels, and wherein the weights are normalized as claimed are discussed in the combined teaching

of Monroe and Pavlidis (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding claim 22, the combined teaching of Pavlidis and Monroe as a whole further teach if pixels in a new frame match the model, the model weights and distributions are updated (Pavlidis, VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding claim 23, the combined teaching of Pavlidis and Monroe as a whole further teach a (modified Jeffery's measure) is used to determine a match or non-match in the distributions (Pavlidis; VI. Object Segmentation and Tracking, *B Segmentation of Moving Objects*: The Matching Operation, page 1486).

Regarding claim 24, the combined teaching of Pavlidis and Monroe as a whole further teach a predetermined number of frames have pixels or blocks that do not match the model, the lowest weighted distributions of the pixels or blocks of a background are removed from the model and replaced by ones derived from a foreground distribution once a derived number of sequences is reached within the last N successive frames (Pavlidis, VI. Object Segmentation and Tracking *B. Segmentation of Moving Objects:* Model Update When a Match is Not Found; page 1487).

Regarding claim 25, the combination of Monroe and Pavlidis as a whole further teach the high speed motion detection algorithm operates in a compressed image domain (see Monroe, page 4, paragraph [0029]).

Regarding claim 26, the combination of Pavlidis and Monroe as a whole further teach the high speed motion detection algorithm operates in an uncompressed image

domain (in Monroe, the calculation of the difference between two images is tabulated uncompressed or compressed, see page 4, paragraph [0032], also page 16, paragraph 0212, optionally compressed).

Regarding claim 27, Monroe discloses a system for detecting motion in a monitored area, the system comprising: means for receiving video images of the monitored area; a fast video motion segmentation (VMS) module that rejects still images that do not portray any motion (motion of the fan is not detected as motion, and does not cause unnecessary transmission and storage of still image data page 9, paragraph [0121]); a robust VMS module that detects motion of an object in the monitored area (remote area; page 3, paragraph [0026]) ; and a resource management controller that initializes, controls, and adapts the fast and robust VMS modules; (adaptive; page 9, paragraph [0123] and page 10, paragraph [0124]. Monroe discloses that the system is adaptive, thus necessitates a controller to initialize, control, and adapt the system for motion detection. Monroe is silent in regards to wherein the VMS module operates on frames having pixels in grey scale for selected portions of the images, and operates on frames having pixels in RGB or other color domain for other portions of the images.

Pavlidis teaches wherein the VMS module operates on frames having pixels in grey scale for selected portions of the images, and operates on frames having pixels in RGB or other color domain for other portions of the images (dual channel camera systems. These systems utilize a medium-resolution color camera during the day and a high resolution gray scale camera during the night, wherein the VMS module operates

on frames having pixels in grey scale for selected portions of the images, and operates on frames having pixels in RGB or other color domain for other portions of the images, V. Optical and System Design, pg 1482-1483). Therefore it would have been obvious to one of ordinary skill in the art at time of the invention to combine the method of Monroe with the teaching of Pavlidis dual channel camera for improving processing speed and accuracy as discussed in Pavlidis.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is (571) 270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessica M. Roberts/
09-21-2007

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